

# Science on the Hill: Scientists strike back at the mysteries of lightning

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When thunderstorm season rolls around and lightning streaks the sky, creating its dazzling display, we likely don't ponder the mysteries it presents. Lightning seems to be one of those things we've got figured out. Didn't we learn everything we need to know when Benjamin Franklin flew his kite on a stormy day in a Pennsylvania field in 1752?

Not quite.

We know that lightning is an energetic electric discharge, creating a current that flows briefly within a cloud or between a cloud and the ground. We know that lightning heats the air to temperatures about five times hotter than the sun's surface. We know that more than 2,000 thunderstorms are active throughout the world at a given moment, producing up to 100 flashes per second.

We also know that lightning is dangerous: estimates vary, but the lowest available suggest lightning causes 4,000 deaths worldwide each year and millions of dollars in property damage. Furthermore, about 22,600 wildfires per year in the United States alone are started by lightning. In New Mexico's San Mateo Mountains last summer, a lightning-initiated wildfire burned more than 65 square miles of land—that's over 40,000 acres.

Despite all this knowledge, lightning is still poorly understood.

Los Alamos National Laboratory is working to change that. Because lightning produces optical and radio frequency signals similar to those from a nuclear explosion, it's important to be able to distinguish whether such signals are caused by lightning or a nuclear event. As part of the global security mission at Los Alamos, scientists use lightning to help develop better instruments for nuclear test-ban treaty monitoring and, in the process, have learned a lot about lightning itself.

This article first appeared in the Santa Fe New Mexican.

Video link: [What Initiates Lightning](#).

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